Improving Water Quality in the Houston Area

Thirteen TMDLs for Dioxin

Water Quality in the Houston Ship Channel and Upper Galveston Bay

The state of Texas currently requires water quality in various parts of the Houston Ship Channel and Upper Galveston Bay to be suitable for contact and noncontact recreation, fishing, navigation, industrial water supply, and aquatic life; however, not all of these segments are required to support all of these uses.

Fishing is not supported in the area as a result of a seafood consumption advisory for catfish and blue crab issued September 1990 by the Texas Department of Health. The advisory was issued to protect consumers from adverse health effects caused by dioxin found in specimens analyzed from the area. Dioxin is a generic term for a suite of toxic and environmentally persistent compounds.

In response to these conditions, a total maximum daily load (TMDL) project has been initiated to determine the measures necessary to restore water quality water bodies affected by the consumption advisory in the Houston Ship Channel and Upper Galveston Bay. The goal of a TMDL is to determine the amount (or load) of a pollutant that a body of water can receive and still support its designated uses. This allowable load is then allocated among all the potential sources of pollution within the watershed, and measures to reduce pollutant loads are developed as necessary.

Learn more about water quality standards and monitoring by reading *Clean Water for Texas: Working Together for Water Quality*, available on the Web at <www.tceq.org/goto/tmdl/>.

Houston Ship Channel and Upper Galveston Bay Watershed

The Houston Ship Channel System consists of 14 designated segments, which together comprise the "enclosed" portion of the Houston Ship Channel proper with its major tributaries and side bays. The dioxin TMDL project includes ten of the designated Houston Ship Channel System segments:

- San Jacinto River Tidal (Segment 1001), Houston Ship Channel (Segments 1005, 1006, 1007), Tabbs Bay (Segment 2426), San Jacinto Bay (Segment 2427), Black Duck Bay (Segment 2428), Scott Bay (Segment 2429), Burnett Bay (Segment 2430) and Barbours Cut (Segment 2436).

The dioxin TMDL project also includes three designated segments not considered part of the Houston Ship Channel System:

- Cedar Bayou Tidal (Segment 0901), Upper Galveston Bay (Segment 2421) and Bayport Channel (Segment 2438).

The Houston Ship Channel System is located in the San Jacinto River Basin. Its various branches originate in western and northern areas of the city of Houston, and at the Lake Houston Dam on the San Jacinto River. Commercial navigation primarily occurs in the segments and reaches southeast of the central business district of Houston, in an area that contains one of the highest densities of petrochemical facilities in the world and has long been one of the three or four busiest ports in the United States.

The Houston Ship Channel System and Upper Galveston Bay are tremendously important to the surrounding region. The commercial navigation provided by the channel initiated and supported the historic growth of the Houston area economy. Facilities in the area, and the waterway itself, are important elements in the economic health of the region, state, and nation. The channel's production of materials and inland location have been and will be important to the military security of the United States. The headwater

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reaches, tributaries, and fringes of both the Houston Ship Channel System and Upper Galveston Bay provide recreational opportunities for residents.

The watershed includes portions of the following political jurisdictions:

Counties: Chambers, Fort Bend, Galveston, Harris
Cities: Houston, Pasadena, Baytown, La Porte, Deer Park

Public Participation Process

Due to the lengthy and extremely technical nature of the sampling, analysis, and model development aspects expected with this TMDL project, a stakeholder group was convened in the early stages of the TMDL development to ensure public participation and input throughout the entire process. The stakeholder group consists of local residents, nongovernmental organizations, industry, and various local, state and federal government representatives. The Houston-Galveston Area Council (H-GAC) is coordinating public participation activities for this project. H-GAC is also coordinating as needed with the Texas Clean Rivers Program Steering Committee and the Technical Advisory Group (TAG) for the San Jacinto River Basin and associated Coastal Basins. For more information on the Dioxin TMDL Stakeholder Group, including stakeholder group rosters, meeting information, and project documents, please visit the H-GAC Web site at <www.h-gac.com/>. From the "Program" tab, choose "Water Resources." Choose "TMDL" in the right box. Or visit the TCEQ Web site at <www.tceq.org/goto/tmdl/>.

TMDL Development Status

Start Date: April 2000
Projected End Date: 2008
TCEQ Adoption:
Submitted to EPA Region 6:
EPA Region 6 Approval:

For More Information

For more information on this project contact one of the following representatives.

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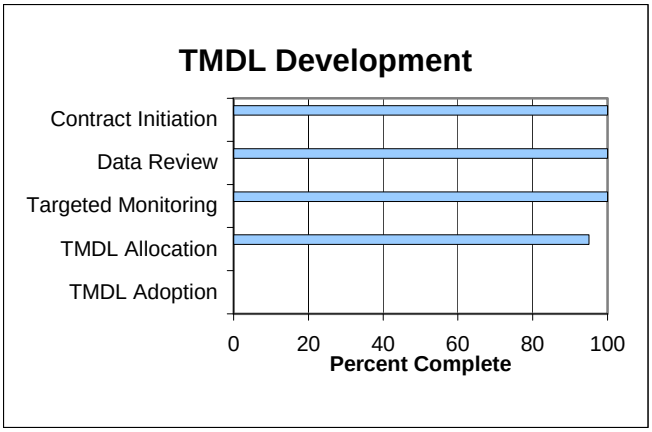

TMDL Project Highlights

- The kick-off meeting of dioxin TMDL stakeholders was held May 3, 2000, at the H-GAC offices in Houston. The meeting informed stakeholders about the TMDL process, described the project area and its impairments, and introduced the technical staff members. Subsequent stakeholder meetings were held in January, March, and August 2001, June 2002, March 2003, January 2004, February and August 2005, January and September 2006, April and June and October 2007, and August 2008.
- A general work plan for completing the project was developed during Phase I. Phase II focused on monitoring dioxin in the Houston Ship Channel and watershed to provide data to support load allocation analyses.
- Phase III of the dioxin project began September 2003. This phase includes: completing planned sampling of all media; developing watershed and stream models that link loading to sediment and tissue accumulation; and using the models to analyze load allocation scenarios.
- A QAPP was approved in July 2002, and has been continuously updated and recertified since then. Sampling and analyses of dioxins in water, sediment, tissue, watershed runoff, wastewater discharges, and air occurred from 2002 into 2006. All sampling was completed by mid-2006.
- Results from sampling indicate that dioxin concentrations in water, sediment, and tissue are elevated. Preliminary analyses suggest that current sources are unlikely to cause the observed concentrations, and that residual sediment loads are the primary issue to address. Subsequent model analyses continue to support that inference. For more detailed information, contact one of the individuals listed above.